

## REMARKS

Applicants request favorable reconsideration and allowance of the subject application in view of the preceding amendments and the following remarks.

Claims 12 and 14-22, are presented for consideration. Claim 12 is the sole independent claim. Claim 13 has been cancelled without prejudice to or disclaimer of the subject matter recited therein. Claims 12, 15-17 and 21 have been amended to clarify features of the subject invention. Support for these changes can be found in the original application, as filed. Accordingly, no new matter has been added.

Applicants request favorable reconsideration and withdrawal of the objections and rejections set forth in the above-noted Office Action.

Claim 18 has been objected to for minor informalities therein. However, we note that the objection the Examiner asserts may have been made in error because claim 18 does not appear to contain any informalities.

Claims 12-16 and 18-21 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,990,227 (Takizawa et al.). Claim 17 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Takizawa et al. in view of European Patent Appl. 1 243 624 A1 (Nakazawa et al.). Claim 19 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Takizawa et al. in view of U.S. Patent No. 6,511,534 B1 (Mishina et al.). Applicants submit that the cited art, whether taken individually or in combination, does not teach or suggest many features of the present invention, as previously recited in these claims. Therefore, these rejections are respectfully traversed. Nevertheless, Applicants submit that independent claim 12, for example, as presented, amplifies the distinctions between the present invention and the cited art.

Independent claim 12 recites a method of applying to a recording medium a liquid consisting of a first liquid composition and a second liquid composition. Each of the liquid compositions further includes a functional substance, an amphiphilic block copolymer, and a liquid medium, with a pH and a pKa of an organic acid group or a salt of the organic acid

group of the copolymer of the first liquid composition being different than a pH and a pKa of an organic acid group or a salt of the organic acid group of the copolymer of the second liquid composition. The first liquid composition is greater than the second liquid composition in pH of the liquid compositions and is greater than the second liquid composition in pKa of the organic acid group or the salt of the organic acid group of the copolymers. Furthermore, the organic acid of the copolymer of the second liquid composition is a sulfonic acid and, an increase in viscosity of the first liquid composition is caused by a decrease in pH of the first liquid composition on contact with the second liquid composition.

The present invention provides a novel liquid composition set for forming an image or pattern by functional substances such as colorant without causing blurring. In addition, the present invention provides a method of applying a liquid by employing the novel liquid composition set to form an image on a recording medium without diffusion of the functional substance to retard blurring between the fixation regions. The present invention further provides a liquid apparatus for image formation by use of the aforementioned liquid composition set without causing running of the functional substances between the fixation regions.

Applicants submit that the cited art does not teach or suggest such features of the present invention, as recited in independent claim 12.

The Takizawa et al. patent shows the making of first and second compositions wherein the separate inks are different in pH from one another, and when at least the two inks are mixed, at least a part of the compositions of the inks mixed deposits, or the viscosity of at least one ink increases. In addition, the Takizawa et al. patent describes that an ink with a water-soluble resin having at least one carboxyl group or anhydride thereof, or sulfonic group per molecule dissolved in water, or the like, is in a hydrated state such that water is absorbed on electrically polarized portion of the carboxyl or sulfonic group.

Applicants submit, however, that the Takizawa et al. patent does not teach or suggest that the first liquid composition is greater than the second liquid composition in both pH and pKa and that the organic acid of the copolymer of the second liquid composition is a sulfonic acid and, an increase in viscosity of the first liquid composition is caused by a decrease in pH of the first liquid composition on contact with the second liquid composition. Rather, in contrast to Applicants' invention, the Takizawa et al. patent discloses that the first and second inks must satisfy a relationship wherein the pH of the first ink is less than the pH of the second ink. Furthermore, the Takizawa et al. patent fails to teach or suggest a pKa of the first and second inks.

Although, the Examiner may consider the first and second inks of the Takizawa et al. patent to coincide with the second and first ink compositions of Applicants' invention, respectively, in order to anticipate Applicants' invention, the first ink of the Takizawa et al. patent must not only be greater in pH and in pKa than the second ink composition, but the first ink must also increase in viscosity upon contact with the second ink. However, since the Takizawa et al. patent fails to disclose the unique relationship between the greater pH and the increase in viscosity, as well as the pKa of the first and second inks, the Takizawa et al. patent fails to anticipate Applicants' invention as recited in independent claim 12.

For the reasons noted, Applicants submit that the Takizawa et al. patent does not teach or suggest many features of Applicants' present invention, as recited in independent claim 12.

The Examiner further points to U.S. Patent No. 5,399,296 (Wierenga et al.) to overcome the deficiencies of the Takizawa et al. patent with respect to the disclosure of pKa. The Wierenga et al. patent discloses solid, concentrated, amine oxide surfactant compositions containing amine oxide-malic acid salts and discloses acrylic acid having a pKa of 4.26 and maleic acid having a pKa of 2.0. Applicants submit, however, that the reference to the pKa of acrylic acid and maleic acid only provide examples of organic acids

that can be used in either ink composition. Therefore, the Wierenga et al. patent fails to overcome the deficiencies of the Takizawa et al. patent.

The Nakazawa publication relates to a stimuli-responsive composition that contains a polymer, a solvent and a substance having a predetermined function. Applicants submit, however, that Nakazawa et al. does not disclose the organic acid groups of the copolymers to be different in pKa and that the amphiphilic copolymer contained in the first liquid composition becomes viscous by pH change of the first liquid composition on contact with the second liquid composition that is different in pH from the first liquid composition. Accordingly, Applicants submit that Nakazawa et al. fails to overcome the deficiencies of the Takizawa et al. patent.

The Mishina et al. patent relates to an ink which is capable of giving higher density of the printed image and color developability with the light fastness and image stability maintained, and suppressing occurrence of bleeding in color image formation. Applicants submit, however, that the Mishina et al. patent also fails to overcome the deficiencies of the Takizawa et al. patent.

For the foregoing reasons, Applicants submit that the present invention, as recited in independent claim 12, is patentably defined over the cited art, whether that art is taken individually or in combination.

Claims 14-22 depend directly from independent claim 12 and are therefore allowable for reasons noted above with respect to claim 12. In addition, each of these claims recite features of the invention still further distinguishing the invention from the cited references. Applicants request favorable and independent consideration of the dependent claims.

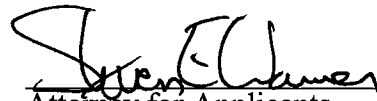
For the reasons noted above, Applicants submit that this Amendment After Final Rejection places this application in condition for allowance. This Amendment was not earlier presented because Applicants believed that the prior Amendment placed the application in condition for allowance. Accordingly, entry of the instant Amendment, as an

earnest attempt to advance prosecution and reduce the number of issues, is requested under 37 CFR 1.116.

Applicants submit that the instant application is in condition for allowance. Applicants request favorable reconsideration, withdrawal of the rejections set forth in the above-noted Office Action and an early Notice of Allowance.

Applicants' undersigned representative may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Steven E. Warner", is written over a horizontal line.

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